REMARKS

Reconsideration of the Office Action is respectfully requested.

The Examiner is thanked for the courteous interview which was conducted with the undersigned and inventor John Hallock. As required, a separate Interview Summary follows the remarks.

Applicants have invented a novel and unobvious method of removing residues from a semiconductor wafer. In accordance with the process of the invention, photoresist is first removed from the wafer by plasma ashing. The ashing process results in residues on the wafer which must be removed. The residues are removed by applying a gas and/or vapor to which the residues are reactive to the wafer at an elevated temperature while exposing the wafer to ultraviolet radiation.

The reactive gas and/or vapor and ultraviolet radiation are applied for a necessary duration and the combination of the reactive gas and/or vapor and the ultraviolet radiation renders the residues soluble in deionized water. The final step is removal of the residues by rinsing with deionized water.

Claims 2 to 6, 14 and 24 stand rejected as being obvious over Molloy et al., U.S. Patent No. 6,046,115 in view of Elliott et al., U.S. Patent No. 5,669,979. This rejection is respectfully traversed as applied to the new claims presented herewith.

Molloy is directed to a plasma ashing process for removing photoresist. The particular ashing process renders those residues which the patentee is concerned with soluble enough to be

removed by deionized water, but the method disclosed is essentially a plasma ashing process.

On the other hand, in the present invention, there is a plasma ashing process for removing photoresist, and a separate residue removal process which uses a gas and/or vapor combined with ultraviolet radiation for removing residues which remain after the ashing is completed. (Specification, page 2, line 12 to page 3, line 20).

New independent claim 25 presented herewith recites:

"a) performing an ashing process on the photoresist with a plasma which removes the photoresist except for a residue; and

b) removing the residue ... by applying a gas and/or vapor to which the residue is reactive,..."

Thus, claim 25 defines over Molloy in the recitation of separate and different method steps for the removal of photoresist and residue respectively.

Additionally, as mentioned in the Office Action, Molloy does not disclose the use of ultraviolet light as a part of his process, and Molloy is thus supplemented in the rejection with the Elliott patent. However, Elliott discloses the use of an ultraviolet laser for the purpose of vaporizing the residue. Moreover, the use of a laser in Elliott is critical, because a high energy density is necessary to achieve vaporization. On the other hand, the specification of the present application indicates that a laser is not suited for use in the present invention since a blanketing effect is desired which cannot be provided by a laser (page 6, line 17 to page 7, line 4).

New independent claim 25 thus recites that the residue is removed with the use of laser. Hence, claim 25 clearly defines over Elliott.

Moreover, the combination of Molloy and Elliott would be a process in which plasma ashing is combined with an ultraviolet laser to remove residue. For the reasons advanced above claim 25 clearly defines over such a process. Additionally, it would not be obvious to modify the references to meet the claim limitations because plasma ashing rather than the application of a gas and/or vapor is required by Molloy and the use of a laser is necessary in Elliott.

It is thus submitted that claim 25 and the claims dependent thereon are directed to patentable subject matter.

Summary of the Interview

Claim 25 presented herein was discussed as were the Molloy and Elliott patents. Applicants argued that Molloy showed only a plasma ashing process, and not a separate methodology for removing residue and that Elliott required the use of a laser. The Examiner agreed that claim 25 did not introduce new matter, but reserved decision on allowability of the claims pending the results of an update search (See Interview Summary Form PTOL-413).

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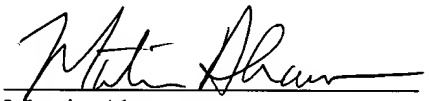
In view of the above, a Notice of Allowance is respectfully solicited.

If the Examiner deems that a telephone interview would advance the prosecution of the application, he is requested to call the undersigned at the telephone number below.

Respectfully submitted,



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